

CLAIMS:

1. An intervertebral disk prosthesis, comprising:
a base plate;
a top plate opposite the base plate; and
an intervening core between said top plate and base plate, wherein
at least one of the plates has on the side facing the core a first concave contact face
and the core has at least one adjacent first convex contact face, characterized in
that encircling one of the contact faces is a first groove in which an elastic first
ring which contacts the opposite contact face is embedded.
2. The intervertebral disk prosthesis according to claim 1, wherein the
opposite contact face has a second groove encircling the contact face which
engages the elastic first ring.
3. The intervertebral disk prosthesis according to claim 1 or 2, wherein
also encircling one of the second contact faces, a third groove is provided in which
an elastic second ring in contact with the opposite contact face is embedded.
4. The intervertebral disk prosthesis according to claim 1, wherein the
base plate and the top plate each have teeth on their outer edges extending
vertically outwards away from the core to engage in an adjacent wall of a vertebral
body.
5. The intervertebral disk prosthesis according to claim 1, wherein the
base plate and the top plate are comprised of steel or titanium and the core is
comprised of a body-compatible high molecular polyethylene synthetic material.
6. The intervertebral disk prosthesis according to claim 3, wherein also
encircling the opposite contact face, a corresponding fourth groove is provided in
which the second ring in contact with the opposite contact face is embedded.

7. An intervertebral disk prosthesis for use in the vertebral column, comprising:
- a base plate;
 - a core in contact with the base plate, wherein the core has a convex surface on its side facing away from the base plate; and
 - an adjoining top plate, wherein the top plate has on the side facing the core a concave section wherein, said core comprises an elastic layer facing the base plate and a sliding face comprising the convex part.
8. The intervertebral disk prosthesis according to claim 7, wherein the base plate and the top plate each have teeth on their outer edges extending vertically outwards away from the core to engage in an adjacent wall of a vertebrae in the vertebral column.
9. The intervertebral disk prosthesis according to claim 7, wherein the base plate is cylindrical in shape to accommodate a cylindrical casing that is operable to be placed on the cylindrical base plate.
10. The intervertebral disk prosthesis according to claim 9, wherein the cylindrical casing has teeth located on one of its ends to engage an adjacent wall of a vertebral body.
11. The intervertebral disk prosthesis according to claim 7, wherein the base plate also has a concave section and the core adjacent to the elastic layer comprises a convex sliding layer in engagement with the concave section.
12. The intervertebral disk prosthesis according to claim 11, wherein the core is constructed as biconvex and has in its centre an elastic intermediate layer.
13. The intervertebral disk prosthesis according to claim 11, wherein the core is constructed as biconvex and has in its centre an elastic ring.

14. The intervertebral disk prosthesis according to claim 7, wherein along a central axis extending from the base plate to the top plate a mandrel is provided to limit the relative movement between the base plate and the top plate about the central axis.

15. The intervertebral disk prosthesis according to claim 7, wherein the core has a bore extending from the base plate to the top plate and wherein a connecting sleeve is provided within the bore to engage the base plate and the top plate.

16. The intervertebral disk prosthesis according to claim 15, wherein at least one screw is screwed into the connecting sleeve to connect the base plate, the top plate, and the core together.

17. An intervertebral disk prosthesis according to one of claims 1 to 16, wherein the contact faces of the base plate or the top plate are constructed as convex and the contact faces of the core are constructed as concave.

18. A method of treating a patient with a damaged invertebral disk in a spinal column comprising the steps of:

- a. removing the damaged vertebral disk and
- b. inserting an invertebral disk prosthesis wherein said prosthesis comprises a base plate, a top plate and an intervening core between said top plate and base plate, whereby said prosthesis cushions and dampens the load on the spinal column.